

CLAIMS

Applicants offer the following amendments in an effort to place the Claims in better condition for appeal. Please amend the Claims as follows:

1-21. (Cancelled)

22. (Previously Presented) A system for managing cache replacement eligibility, comprising:

a first address register configured to request an address from an L1 cache;

an L1 cache configured to determine whether a requested address is in the L1 cache and, in response to a determination that a requested address is not in the L1 cache, further configured to transmit the requested address to a range register coupled to the L1 cache;

the range register configured to generate a class identifier in response to a received requested address and to transmit the requested address and class identifier to a replacement management table coupled to the range register;

the replacement management table configured to generate L2 tag replacement control indicia in response to a received requested address and class identifier;

an L2 address register coupled to the first address register and configured to request an address from an L2 cache;

an L2 cache coupled to the L2 address register and the replacement management table and configured to determine whether a requested address is in the L2 cache and further configured to assign replacement eligibility of at least one set of cache lines in the L2 cache in response to received L2 tag replacement control indicia; and

in response to a determination that a requested address is not in the L2 cache, the L2 cache further configured to overwrite a cache line within a set of the L2 cache as a function of the replacement eligibility.

23. (Previously Presented) The system of Claim 22, wherein a set of the L2 cache is replaced as a function of the replacement eligibility and a least recently used function.

24. (Previously Presented) The system of Claim 22, wherein the L1 cache is one of the group comprising an L1 data cache and an L1 instruction cache.

25. (Previously Presented) The system of Claim 22, wherein the range register and the replacement management table are further configured to be written to by software.

26. (Previously Presented) The system of Claim 22, wherein the range register comprises a range start register and a range mask register.

27. (Previously Presented) The system of Claim 22, wherein the replacement management table comprises a plurality of entries, each entry indexed by a unique class identifier and comprising a plurality of set enable bits, a valid bit, a bypass bit, and an algorithm bit.

28. (Currently Amended) The system of Claim 27, wherein the [[a]] set of the L2 cache is replaced as a function of the replacement eligibility and a replacement algorithm indicated by the algorithm bit.

29. (Previously Presented) A method for managing cache replacement eligibility, comprising:
- requesting an address from an L1 cache;
 - in response to a determination that the requested address is not in the L1 cache, determining whether the address falls within at least one predetermined range of addresses;
 - setting a class identifier to a default value if the requested address does not fall within at least one predetermined range of addresses;
 - setting a class identifier to a predetermined value associated with a predetermined range of addresses if the requested address falls within the predetermined range of addresses;
 - generating tag replacement control indicia in response to the class identifier;
 - requesting the address from an L2 cache, the L2 cache comprising one or more sets of cache lines; and
 - in response to a determination that the requested address is not in the L2 cache, setting replacement eligibility of a set in the L2 cache in response to the tag replacement control indicia and overwriting a cache line within a set of the L2 cache as a function of the replacement eligibility.
30. (Previously Presented) The method of Claim 29, further comprising discarding the tag replacement control indicia in response to a determination that the requested address is in the L2 cache.
31. (Previously Presented) The method of Claim 29, further comprising employing an algorithm bit to select an algorithm for replacement of an eligible set and overwriting a cache line within a set of the L2 cache as a function of the replacement eligibility and the selected algorithm.

32. (Previously Presented) The method of Claim 29, further comprising overwriting a cache line within a set of the L2 cache as a function of the replacement eligibility and a least recently used function.

33. (Previously Presented) The method of Claim 29, wherein the step of generating tag replacement control indicia further comprises employing a software-managed replacement management table.

34. (Previously Presented) The method of Claim 29, wherein the steps of setting a class identifier to a default value and setting a class identifier to a predetermined value further comprise employing a range register.

35. (Previously Presented) The method of Claim 34, wherein the range register comprises a range start register and a range mask register.

36. (Previously Presented) The method of Claim 34, wherein the range register is configured to be written to by software.

37. (Previously Presented) The method of Claim 29, wherein the L1 cache is one of the group comprising an L1 data cache and an L1 instruction cache.

38. (Currently Amended) A computer program product for cache replacement eligibility, the computer program product having a computer-readable medium with a computer program embodied thereon, the computer program comprising:

computer code for requesting an address from an L1 cache;

computer code for, in response to a determination that the requested address is not in the L1 cache, determining whether the address falls within at least one predetermined range of addresses;

computer code for setting a class identifier to a default value if the requested address does not fall within at least one predetermined range of addresses;

computer code for setting a class identifier to a predetermined value associated with a predetermined range of addresses if the requested address falls within the predetermined range of addresses;

computer code for generating tag replacement control indicia in response to the class identifier;

computer code for requesting the address from an L2 cache, the L2 cache comprising one or more sets of cache lines; and

computer code for, in response to a determination that the requested address is not in the L2 cache, setting replacement eligibility of a set in the L2 cache in response to the tag replacement control indicia and overwriting a cache line within a set of the L2 cache as a function of the replacement eligibility.

39. (Previously Presented) The computer program product of Claim 38, further comprising computer program code for employing an algorithm bit to select an algorithm for replacement of an

eligible set and overwriting a cache line within a set of the L2 cache as a function of the replacement eligibility and the selected algorithm.

40. (Previously Presented) The computer program product of Claim 38, further comprising computer program code for overwriting a cache line within a set of the L2 cache as a function of the replacement eligibility and a least recently used function.

41. (Previously Presented) A processor for determining information replacement in a cache, the processor including a computer program comprising:

computer code for requesting an address from an L1 cache;

computer code for, in response to a determination that the requested address is not in the L1 cache, determining whether the address falls within at least one predetermined range of addresses;

computer code for setting a class identifier to a default value if the requested address does not fall within at least one predetermined range of addresses;

computer code for setting a class identifier to a predetermined value associated with a predetermined range of addresses if the requested address falls within the predetermined range of addresses;

computer code for generating tag replacement control indicia in response to the class identifier;

computer code for requesting the address from an L2 cache, the L2 cache comprising one or more sets of cache lines; and

computer code for, in response to a determination that the requested address is not in the L2 cache, setting replacement eligibility of a set in the L2 cache in response to the tag replacement

control indicia and overwriting a cache line within a set of the L2 cache as a function of the replacement eligibility.

42. (Previously Presented) The computer program of Claim 41, further comprising computer code for managing a replacement management table, the replacement management table configured to generate tag replacement control indicia in response to the class identifier.